IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Yoshinori Watanabe

Application No.: 10/726,707 Confirmation No.: 7043

Filed: December 4, 2003 Art Unit: 2617

For: RECEPTION DETERMINATION METHOD AND SYSTEM OF RAY, AND RADIO WAVE PROPAGATION CHARACTERISTIC ESTIMATION METHOD USING THEM Examiner: E. J. Elcenko

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

INTRODUCTORY COMMENTS

Applicant respectfully requests a review of the legal and factual bases for the rejections in the above-identified patent application. Pursuant to the guidelines set forth in the Official Gazette Notice of July 12, 2005, for the Pre-Appeal Brief Conference Program, as extended by Official Gazette Notice of February 7, 2006, favorable reconsideration of the subject application is respectfully requested.

Claims 1, 14 and 27 pending in the application have been twice rejected, most recently in a Final Office Action mailed April 14, 2009 (the "Office Action"). A copy of rejected claims 1, 14 and 27 and allowable claims 2-13 and 15-26 are annexed to this Brief for the reviewer's convenience. In particular, claims 1, 14 and 27 have been rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 7,085,697 to (Rappaport) in view of U. S. Publication No. 2002/0065928 (Senga). Applicant respectfully submits that rejection of these claims is improper for the reasons set forth in detail below.

Rappaport and Senga Fail to Disclose Grouping Reception Points

Rappaport is directed to measuring a wireless network's performance at fixed or moveable watch points in an environment. Rappaport, col. 8, ll. 27-30. Rappaport teaches 3-D modeling of environmental interferences to establish radio signal strength contour lines. *See* Rappaport, Figs. 3 and 4. Rappaport does not disclose predicting the path of a ray. The Office Action admits on page 4 that "Rappaport does not teach [that] the reception points [i.e., points in a ray's predicted path] are arranged into groups in the observation region for singular or plural reception point grouping." Indeed, because Rappaport fails to disclose grouping reception points, it cannot also disclose that such ray path determination processing "is applied to reception point groups," as required by the independent claims. Senga fails to cure these deficiencies of Rappaport.

Senga does not disclose the claimed "reception determination processing of [a] ray" (i.e., determining the reception of an electro-magnetic wave cast in free space). Rather, Senga is directed to the transmission of data multicast in a wired network, and the management of groups of terminals and selective data communications to selective groups, as disclosed in the cited portions of Senga [0018]-[0023] and [0106]-[0110]. These teachings in Senga are not the claimed "reception determination processing of [an electromagnetic] ray." There is no question that data packets multicast most certainly will be received by the hosts (reception points) that are hardwired to the network. Absorption of electromagnetic rays transmitted in space are not contemplated by Senga, and it is devoid of such teachings. Therefore, Senga does not concern predicting a path of "a ray provided within an observation region" as required by the independent claims, and thus, cannot teach the claim limitations of grouping the "reception points arranged within said observation region . . . for singular or plural reception points," and applying "reception determination processing . . . to reception point groups," as required by the independent claims. In the absence of any disclosure or teachings of these claimed limitations, independent claims 1, 14 and 27 are believed to be in condition for allowance.

It is Improper to Combine Rappaport with Senga

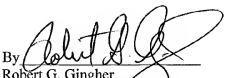
Senga's teachings are not in the same field as Rappaport. Rappaport relates to "a system and method for managing a real time bill of materials when designing, evaluating or optimizing the performance and/or costs of a communication system using a three-dimensional (3-D) represntation of the environment." Rappaport, col. 1, ll. 31-35. Senga relates to "a multicast system in which a plurality of terminals are distributed and connected via a [wired] network so that data can be transmitted in a multicast mode in the system." Senga at [0002]. Senga discloses "a multicast conferencing system that has such construction and is capable of dividing an entire multicast conference group into a plurality of multicast conference groups with easier procedures." *Id.* The International publication classification (G06F15/16) and U.S. publication classification (709/231 and 709/206) of Senga do not match the International (G06F17/50 and H04Q 7/20) and U.S. (703/13; 703/1; 455/422.1; 455/423; 455/446) classes of Rappaport. Clearly, Senga's teachings are not in the field of ray and radio wave propagation, and have nothing to do with 3-D modeling of an environment through which such rays are propagated. One with ordinary skill in the art of ray and radio wave propagation would not have looked to the multicast conferencing field for teachings of determining the propagation of rays.

Thus, it is not proper nor logical to combine the teachings and suggestions of Rappaport and Senga, as advanced by the Examiner, except from the use of Applicant's invention as a template through a hindsight reconstruction of Applicant's claims. *Ex Parte Crawford et al.*, Appeal 20062429, decided May 30, 2007. Accordingly, because the Office Action fails to set forth a *prima facie* case of obviousness, Applicant respectfully requests withdrawal of the rejection, and earnestly solicits allowance of claims 1, 14 and 27.

In view of the above arguments addressing limitations of the independent claims not taught or suggested by the art of record, Applicant believes the pending application is in condition for allowance.

Dated: August 14, 2009

Respectfully submitted,



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APPENDIX A

LISTING OF THE CLAIMS

1. (Original) A reception determination method of a ray, in which

a path of a ray provided within an observation region is predicted, and reception determination processing is applied to reception points of said ray, which are arranged in advance within said observation region,

characterized in that the reception points arranged within said observation region are divided into groups for singular or plural reception points, and said reception determination processing is applied to reception point groups including the reception points to which said reception determination processing is needed to be applied.

2. (Original) A reception determination method of a ray recited in claim 1, characterized in that hierarchical grouping processing is applied to said reception points so that a structure in which a reception point group having a large scale involves a smaller scale of plural reception point groups is formed, and hierarchical structure information constructed of information with respect to an implication relationship of the reception point groups between different hierarchies and the reception points included in the reception point groups is constructed.

3. (Original) A reception determination method of a ray recited in claim 1, characterized in that screening processing for leaving only said reception point groups including the reception points inside, to which said reception determination processing is need to be applied, is applied to said reception point groups inside said observation region, and said reception determination processing of the ray and the reception points is applied to only the reception points included in said finally screened reception point groups.

4. (Original) A reception determination method of a ray recited in claim 3, characterized in that, referring to said hierarchical structure information, said screening processing is conducted stepwise by means of a successive transition from a large scale of the reception point group to a small scale of the reception point group.

5. (Original) A reception determination method of a ray recited in claim 3, characterized in that the screening determination for said screening processing is conducted by means of intersection determination of a region where the reception point groups are involved and a partial space which is defined in the vicinity of said ray.

6. (Original) A reception determination method of a ray recited in claim 3, characterized in that, in the screening determination for said screening processing, said screening determination is successively applied to each reception point group until it is finished to the reception point groups belonging to the same hierarchy within said observation region, and thereafter, the processing is moved to the next hierarchy consisting of a smaller scale of reception point groups, and similarly, said screening processing is applied to each reception point group until it is finished to the reception point groups which would be a subject of said screening determination inside the same hierarchy.

7. (Original) A reception determination method of a ray recited in claim 3, characterized in that, in the screening determination for said screening processing, said screening determination processing is applied to one of the reception point groups within said observation region, and then, a smaller scale of one reception point group involved in said reception point groups is selected from the next hierarchy of a hierarchy to which said reception point groups belong to apply said screening determination thereto, and at a step when arriving at a hierarchy of reception point groups which cannot be finally divided, said reception determination processing of the ray and the reception points is applied to reception

points involved in said reception point groups, and thereafter, said screening determination is applied to non-selected reception point groups in a one-stage upper hierarchy, and whereby said screening determination processing is recursively operated.

8. (Original) A reception determination method of a ray recited in claim 3, characterized in that, as the region involving said reception point groups, a circumscribed sphere circumscribed with these reception point groups is utilized.

9. (Original) A reception determination method of a ray recited in claim 3, characterized in that, as the region involving said reception point groups, a region defined by a combination of regions divided by singular or plural planes is used.

10. (Original) A reception determination method of a ray recited in claim 8, characterized in that said reception points are arranged in the shape of a planar lattice in said observation region, and in said hierarchical grouping processing, when lattice points which stand in a line on a most outer side form a rectangle, the number of the reception points (most external contour reception points, hereinafter) which stand in a line on two sides thereof is resolved into a sum of a^n (a is an integer equal to or more than 1, and n is a positive integer including 0), and after square regions in which each factor of the generated a^n by means of the resolution is assumed to be the number of the most external contour reception points are newly generated, out of these square regions, the regions having a greater area are spread inside said observation region as much as possible, and further, by successively dividing each of the spread square regions into a^2 square regions having the same area, a hierarchical group of the reception points is structured.

11. (Original) A reception determination method of a ray recited in claim 5, characterized in that, in case that a barrier is positioned at both ends of said ray, said screening

determination is conducted by means of the intersection determination of a region sandwiched between two planes including the barrier, and said reception point groups.

12. (Original) A reception determination method of a ray recited in claim 5, characterized in that, when it is determined whether or not said reception point groups are divided into a smaller scale of reception point groups, said screening determination is conducted by using a value of a cost function defined in advance.

13. (Original) A radio wave propagation characteristic estimation method characterized in that estimation of radio wave propagation in said observation region is made by using the reception determination method of a ray recited in claim 1.

14. (Original) A reception determination system of a ray, in which a path of a ray provided within an observation region is predicted, and reception determination processing is applied to reception points of said ray, which are arranged in advance within said observation region, said reception determination system comprises:

grouping means for grouping the reception points arranged within said observation region for singular or plural reception points; and

reception determination means for applying said reception determination processing to reception point groups including the reception points to which said reception determination processing is needed to be applied.

15. (Original) A reception determination system of a ray recited in claim 14, wherein said grouping means applies hierarchical grouping processing to said reception points so that a structure in which a reception point group having a large scale involves a smaller scale of plural reception point groups is formed, and constructs hierarchical structure information

constructed of information with respect to an implication relationship of the reception point groups between different hierarchies and the reception points included in the reception point groups.

16. (Original) A reception determination system of a ray recited in claim 14, further comprises screening means for applying screening processing for leaving only said reception point groups including the reception points inside, to which said reception determination processing is need to be applied, to said reception point groups inside said observation region, and

said reception determination means applies said reception determination processing of the ray and the reception points to only the reception points included in said finally screened reception point groups.

17. (Original) A reception determination system of a ray recited in claim 16, based on said hierarchical structure information, said screening means conducts said screening processing stepwise by means of a successive transition from a large scale of the reception point group to a small scale of the reception point group.

18. (Original) A reception determination system of a ray recited in claim 16, wherein said screening means conducts the screening determination for said screening processing by means of intersection determination of a region where the reception point groups are involved and a partial space which is defined in the vicinity of said ray.

19. (Original) A reception determination system of a ray recited in claim 16, wherein said screening means successively applies the screening determination for said screening processing to each reception point group until it is finished to the reception point groups belonging to the same hierarchy within said observation region, and thereafter, moves to the

next hierarchy consisting of a smaller scale of reception point groups, and similarly, applies said screening processing to each reception point group until it is finished to the reception point groups which would be a subject of said screening determination inside the same hierarchy.

20. (Original) A reception determination system of a ray recited in claim 16, wherein said screening determination means applies said screening determination processing to one of the reception point groups within said observation region, and then, selects a smaller scale of one reception point group involved in said reception point groups from the next hierarchy of a hierarchy to which said reception point groups belong to apply said screening determination thereto, and at a step when arriving at a hierarchy of reception point groups which cannot be finally divided, applies said reception determination processing of the ray and the reception points to reception points involved in said reception point groups, and thereafter, applies said screening determination to non-selected reception point groups in a one-stage upper hierarchy, and thereby, recursively operates said screening determination processing.

21. (Original) A reception determination system of a ray recited in claims 17, characterized in that, as the region involving said reception point groups, a circumscribed sphere circumscribed with these reception point groups is utilized.

22. (Original) A reception determination system of a ray recited in claim 16, characterized in that, as the region involving said reception point groups, a region defined by a combination of regions divided by singular or plural planes is used.

23. (Original) A reception determination system of a ray recited in claim 21, characterized in that said reception points are arranged in the shape of a planar lattice in said observation region, and in said hierarchical grouping processing, when lattice points which

stand in a line on a most outer side form a rectangle, the number of the reception points (most external contour reception points, hereinafter) which stand in a line on two sides thereof is resolved into a sum of a^n (a is an integer equal to or more than 1, and n is a positive integer including 0), and after square regions in which each factor of the generated a^n by means of the resolution is assumed to be the number of the most external contour reception points are newly generated, out of these square regions, the regions having a greater area are spread inside said observation region as much as possible, and further, by successively dividing each of the spread square regions into a^2 square regions having the same area, a hierarchical group of said reception points is structured.

24. (Original) A reception determination system of a ray recited in claim 18, characterized in that, in case that a barrier is positioned at both ends of said ray, said screening determination is conducted by means of the intersection determination of a region sandwiched between two planes including the barrier, and said reception point groups.

25. (Original) A reception determination system of a ray recited in claim 18, characterized in that, when it is determined whether or not said reception point groups are divided into a smaller scale of reception point groups, said screening determination is conducted by using a value of a cost function defined in advance.

26. (Original) A radio wave propagation characteristic estimation system characterized in that estimation of radio wave propagation in said observation region is made by using the reception determination system of a ray recited in claim 14.

27. (Previously presented) A computer readable medium encoded with a computer program that causes a computer to execute steps comprising:

having a reception determination method of a ray executed by the computer, in which

a path of a ray provided within an observation region is predicted,

reception determination processing is applied to reception points of said ray, which are arranged in advance within said observation region,

arranging reception points within said observation region by dividing said reception points into groups for singular or plural reception points, and

said reception determination processing is applied to reception point groups including the reception points to which said reception determination processing is needed to be applied.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number (Optional) U2054.0145	
	Application Number 10/726,707-Conf. #7043	Filed December 4, 2003
	First Named Inventor Yoshinori Watanabe	
	Art Unit 2617	Examiner E. J. Elcenko

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- [ ] applicant /inventor.
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- [ ] attorney or agent of record. Registration number _____
- [x] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. 45,755

Signature

Robert G. Gingher
Typed or printed name

(212) 277-6537
Telephone number

August 14, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

- [ ] *Total of 1 forms are submitted.